In-Situ Oxidized Films for Use as Gap Layers for a Spin-Valve Sensor and Methods of Manufacture

ABSTRACT OF THE INVENTION

Disclosed is a spin-valve sensor disposed between first and second gap layers and formed of one or more *in-situ* oxidized films. The improved spin valve sensor helps eliminate electrical shorting between the spin-valve sensor and shield layers. A fabrication method of the gap layers comprises repeatedly depositing a metallic films on a wafer in a DC-magnetron sputtering module of a sputtering system, and then transferring the wafer in a vacuum to an oxidation module where *in-situ* oxidation is conducted. This deposition/*in-situ* oxidation process is repeated until a designed thicknesses of gap layers is attained. Smaller, more sensitive spin-valve sensors may be sandwiched between thinner gap layers formed of *in-situ* oxidized films, thus allowing for greater recording data densities in disk drive systems.

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